AMENDMENTS TO THE CLAIMS

1-12. (Cancelled)

13. (New) A mobile terminal configured to interoperate with a mobile communication system simultaneously providing multiple services, the multiple services including a voice service, a text service, and an image service, through a wireless traffic channel, the mobile terminal comprising:

a vocoder configured to vocode voice data with a variable vocoding rate to produce a plurality of voice frames, including vocoding detected speech into a speech frame with a predetermined maximum vocoding rate and vocoding periods without detected speech into a non-speech frame at a vocoding rate lower that the predetermined maximum vocoding rate;

a CMS (concurrent multiple service) processor configured to segment a to-be-transmitted CMS message of one of the multiple services into data segments;

a voice frame checker configured to determine whether or not one of the plurality of voice frames is vocoded with a vocoding rate less than the predetermined maximum vocoding rate and to output a corresponding check result; and

a frame generator configured to:

if the check result indicates that the vocoding rate is less than the predetermined maximum vocoding rate, multiplex the one data segment and the one voice frame to generate a common frame, and to transfer the common frame to a wireless modem for transmission; and

if the check result indicates that the vocoding rate is not less than the predetermined maximum vocoding rate, transfer the one voice frame without the one data segment to the wireless modem for transmission.

14. (New) The mobile terminal of claim 13, further comprising:

a memory connecting the CMS processor to the frame generator and configured to store the segments.

15. (New) The mobile terminal of claim 13, wherein the frame generator is configured to multiplex the one data segment and the one voice frame to generate the common frame if the determined vocoder rate is less than the predetermined maximum vocoder rate.

16. (New) The mobile terminal of claim 13, wherein the one service comprises one of a name card service, an image service, and a file transfer service.

17. (New) The mobile terminal of claim 13, further comprising:

a CMS data checker configured to:

determine if individual frames of data received via the wireless modem include one voice frame multiplexed with a corresponding segment of CMS data; and

for a frame of data determined to include one voice frame multiplexed with the corresponding segment of CMS data, extract and store the corresponding segment of CMS data from the frame,

wherein the CMS data processor is further configured to retrieve segments of CMS data stored in the CMS data checker with a predetermined time period, and to assemble the segments into assembled CMS data.

18. (New) The mobile terminal of claim 17, wherein the predetermined time period is equal to a frame transmitting period.

19. (New) The mobile terminal of claim 17, wherein the CMS data checking unit is configured to transfer extracted voice frames to the vocoder.

20. (New) The mobile terminal of claim 13, wherein the vocoding rate lower than the predetermined maximum vocoding rate is 1/8 the predetermined maximum vocoding rate.

21. (New) A method of multiplexing/de-multiplexing multiple services to simultaneously provide the multiple services through a wireless traffic channel, the method comprising:

vocoding voice data with a variable vocoding rate to produce a plurality of voice frames, including vocoding detected speech into a speech frame with a predetermined maximum vocoding rate and vocoding periods without detected speech into a non-speech frame at a vocoding rate lower that the predetermined maximum vocoding rate;

segmenting CMS (concurrent multiple service) data received from a CMS data terminal into data segments;

determining whether or not one of the plurality of voice frames is vocoded with a vocoding rate less than the predetermined maximum vocoding rate and to output a corresponding check result;

if the check result indicates that the vocoding rate is less than the predetermined maximum vocoding rate, multiplexing the one data segment and the one voice frame to generate a common frame, and transferring the common frame to a wireless modem for transmission; and

if the check result indicates that the vocoding rate is not less than the predetermined maximum vocoding rate, transferring the one voice frame to the wireless modem for transmission without the one data segment.

22. (New) The method of claim 21, further comprising:

determining if individual frames of data received via the wireless modem include one voice frame multiplexed with a corresponding segment of CMS data;

for a frame of data determined to include one voice frame multiplexed with the corresponding segment of CMS data, extracting and storing the corresponding segment of CMS data from the frame;

retrieving stored segments of CMS data with the predetermined time period and assembling the segments into assembled CMS data; and

transferring the assembled CMS data to the CMS data terminal.

23. (New) The method of claim 20, wherein the vocoding rate lower than the predetermined maximum vocoding rate is 1/8 the predetermined maximum vocoding rate.